"Industrial Data Right" and Innovation?

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Towards a connected Digital Single Market – what about a new „industrial data protection right" for companies?"

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1. Introduction

Industrial Data Rights: A New Discussion

- Part of discussion about the proper legal rules for digital economy

  + Digital Single Market Strategy: "building a data economy" and against barriers to "free flow of data"

  + Discussion about „Industry 4.0"

- Data as valuable and critical resource for Big Data / digital economy:

- „Ownership" for data that are not copyright protected or personal data?

- My question:

  + Do we need a new exclusive (IP-like) property right for data?

  + from a „law and economics" / „innovation economics" perspective

Discussion about traditional IPRs from an innovation perspective:

- Incentive problems through market failure due to non-excludability
  through imitation / copying (public good problem!)

- But: alternative methods of appropriation (secrecy, being first etc.),
  i.e. extent of market failure in regard to innovation is very different

- Exclusive IPRs as only one form of policy solution

- IPRs are not first-best solutions and come with huge social costs, esp.
  also in regard to impeding further innovation

- Last 20 years: most discussion on IPRs was about defects / problems
  / costs of IPRs and the difficulties to solve them

 => Many IP scholars very concerned about new exclusive IPRs!

Data and information: Open questions about the subject matter

- So far basic principle of IP: no exclusive property rights on information, i.e. information should not be monopolized

- Kinds of data that might be protected:
    +   raw data
    +   processed data and data sets (combined from different sources)
    +   data as the result of data analytics

- Data ⇔ information: Data is codified information, and all information can be codified / transformed into data

- Distinction syntactic / semantic information might help, but unclear

    +   whether subject matter can be clearly defined

    +   whether we end up in monopolizing de facto semantic information

3. IP Rationale I: Incentive Problem? (1)

Public good problem: if non-rivalry + non-excludability

Non-rivalry in use of data?   **=> Yes!**

- Use of data by one person does not impede use through others
- welfare-optimal use of data: => open access to everybody with $P = 0$

   => no analogy to property on physical objects!

Non-excludability of data?   **=> No!**

- Most privately produced data are excludable, because data holder can keep them secret (technological protection including encryption)
- Only if data leak out on the internet: non-excludability
- Analogy to know how (and other information protected by trade secrets)

   => **No general public good problem in regard to data!**

Incentive Problem: Theoretical Discussion

- Data are produced, if private benefits > private costs for data producer

- Costs for producing data, e.g. for collecting / processing / analyzing data might be low or high,

  + but: huge economies of scale and scope, network externalities

  + data can be collected very easily / low costs (often as by-product)

- Is the amount of produced data optimal? => theoretically unclear!

  + for certain data incentives might be too large or too low, depending on externalities of benefits and costs

  + but: no general market failure through a public good problem!

3. IP Rationale I: Incentive Problem? (3)

Incentive Problem: Empirical Perspective

Figure 1.1. Estimated worldwide data storage

In zettabytes (ZB, trillions of gigabytes)
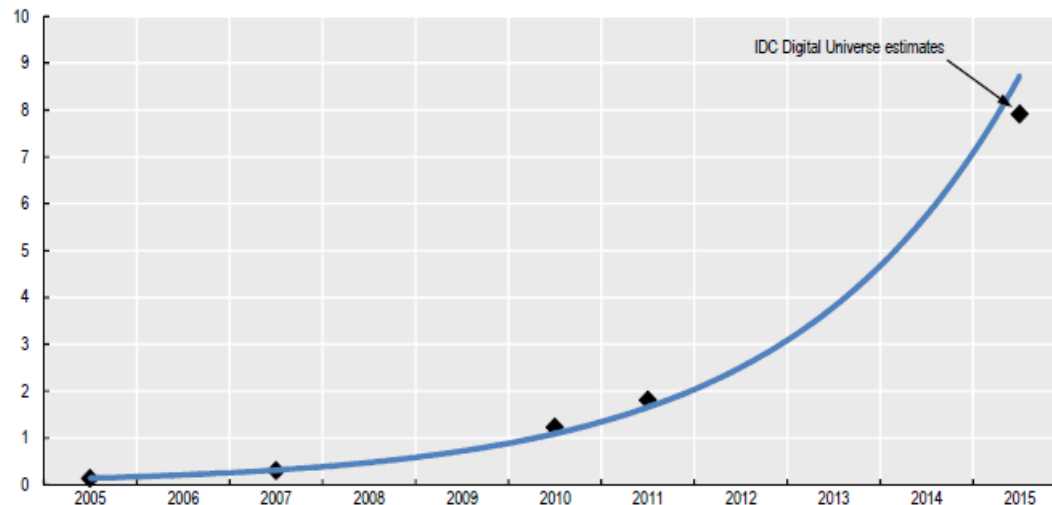
(OECD, 2015, p.20)

Source: Based on the IDC (2012) Digital Universe research project.

- Exponential growth of collected, processed, and analyzed data
- Interesting: Nobody claims that there are incentive problems!

=> **No evidence of general incentive problems for producing data!**

Market failure in regard to the use and trade of privately held data?

- Innovation and IPRs: exclusive IPRs can lower transaction costs for trading innovations or letting others use them (licensing)

- Leads back to old discussions about failure of information markets

- Problem 1: **Information paradox**

    + but: value of data can be assessed w/o giving full access before trade

    => information paradox no general problem for data markets

4. IP Rationale II: Facilitating Use and Trade of Data (2)

- Problem 2: **Reselling of information / data by first buyers:**

  + this can be a huge problem, and can lead to market failure

  + Solution 1: contractual solutions which prohibit reselling or giving others access to these data

  + Solution 2: technical protections that make access through others technically impossible

  + Empirical questions: effectiveness and costs of both solutions?

  + To what extent can law help these solutions?

- However: open research question how well data markets work

  + direct trade with data, data brokers

  + lack of empirical research

4. IP Rationale II: Facilitating Use and Trade of Data (3)

- Standard business solution for commercialising information and data:

  => **Indirect „sale / use" of information / data through services**

  + business models that do not sell (or give direct access to) data / but sell valuable services based on data, e.g., consultancy services

  + digital economy: consists to a large extent of these business models

  + data-based targeted advertising (Google, Facebook), and also many other new services

  + (but: indirect sale/use of data might not be most efficient solution!)

- Question: Are there many privately held data, which are (under-)used due to market failures?   => presumably not!

 => **IPRs on data not necessary for facilitating trade/use of data!**

Data in Value Networks:

- „Industry 4.0" is based upon integrated networks of firms, in which flow of data within the entire network is crucial

- Networks are based upon contractual relationships, and are therefore a result of market competition

- Data are produced in different parts of the network and there might be many interested parties for these data (inside / outside of network)

- Claim that there is a need to assign the (benefits) of data to a single data „owner" as additional rationale for exclusive rights on data:

  + Discussion about assignment criterion: data producer (encoding), economically responsible firm, investment, who needs data most ...

  + but: often several firms in network contribute to data generation

5. Data in Value Networks: Assigning (the Benefits of) Data (2)

Questions: - Why do we have to assign (benefits of) data to a specific firm in network (and why exclusive data rights)?

- Why not leaving this to contracting parties?

Data governance in networks is necessary:

- It has to be decided who produces, holds, processes data, and who has access to them, can use them for what, and can perhaps „sell" them to outside parties (including the distribution of the benefits)

- firms in the network know their business model best and how their data should be managed (and can make this decision contractually)

- External criteria for assigning data are not necessary, because in a market the economic effects are internalized

- Or: Do we have market failures for contractual market solutions?

5. Data in Value Networks: Assigning (the Benefits of) Data (3)

Potential market failures:

- **Information / rationality problems:** esp. consumers
  + regulation by consumer/data protection law (standard form contracts)

- **Market power problems** within the network:
  + „powerful" firms might make „unfair" / „exploitative" contracts and deprive firms of their network-specific investments in data (hold up)
  + case for competition law (Art. 102 TFEU, § 19, 20 GWB, and perhaps also Art.101(3) TFEU: vertical restraints)
  + beyond that: the state should not intervene into the value networks for solving distributional problems between the firms

- **Transaction costs:** perhaps new suitable default rules in contract law

  => No need for external legal assignment of exclusive IPRs on data in value networks!

6. Dangers of Exclusive Data Rights for Innovation (1)

Need for assessment of risks and costs of exclusive IPRs on data:

- Uncertainty about what is protected and scope of protection can lead to legal uncertainty and large administrative / legal costs

- Danger of not only protecting „data" but also semantic information

- Would exclusive IPRs on data aggravate competition problems, e.g.,

  + monopolizing the resource „data" (e.g., through mergers),

  + or data cartels (data pools, similar to patent pools)

- With data similar problems than with patent hold ups, standard-essential patents, or patent trolls ? (access to „essential" data)

6. Dangers of Exclusive Data Rights for Innovation (2)

Do IPRs on data fit into functional logic of Big Data / digital economy?

- Basic idea: to use data from very different sources, combine them, analyze them for different uses, derive new data etc.

- Crucial: easy access to many different data and free flow of data

- Exclusive property rights on data might be barriers that impede „free flow of data" and hamper innovation in the digital economy

Alternative concepts of open data, data commons, and open innovation:

- OECD (2015: Data-Driven Innovation):
  data seen as an„infrastructure" for innovation in the digital economy

  + important is access to data

  + developing data governance system that overcome barriers to data access, data sharing and interoperability

7. Conclusions (1)

Summary of the results: (based on our current knowledge)

- no evidence for an incentive problem

- no evidence for an under-utilization of data or serious problems of commercialising data

- no need for IPR on data for solving problems in value networks

- exclusive IPRs on data might have huge social costs, esp. for innovation in the digital economy!

- And: there is no comparable discussion in the US !

 => **Exclusive (industrial) rights on data cannot be recommended!**

7. Conclusions (2)

But important discussions on data governance and rights on data:

- Rights against destruction, misappropriation, rights for integrity, access, and use of data (trade secret law, criminal law, tort law etc.)

- Access rights to privately held data:
  - + In the future: huge amounts of privately held data
  - + Who should have a right to access (and use) these data?
    - > state in public interest (public information), science for research
    - > private parties under certain circumstances, e.g. in value networks

- Protection of personal data:
  - + Where to draw the line betw. protected private sphere and (digital) public sphere (scope of the digital economy)?
    => complex (economic) trade off problems !